

REMARKS

Claims 1-20 are pending. No amendments have been made.

Applicants note with appreciation the Examiner's indication that the drawings filed on February 23, 2004, are accepted.

Applicants also note with appreciation the Examiner's acknowledgement of applicants' claim for foreign priority and receipt of the certified copy of the priority document.

In the Office Action mailed on November 4, 2004, the Examiner rejected claims 1-20 under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 6,300,676 to Kawai ("the Kawai reference"). Applicants respectfully traverse the rejection for the following reasons.

Claims 1 and 11 relate to manufacturing micro electro-mechanical systems. A via hole is formed in the glass substrate of these systems. Claim 1 recites, *inter alia*, arranging a solder ball in the via hole and bonding the solder ball to the under bump metal by melting the solder ball. Claim 11 recites, *inter alia*, disposing a solder ball in the via hole and bonding the solder ball with the under bump metal and the via side metal by melting the solder ball. Thus, in claims 1 and 11, the solder ball is in the via hole. Applicants respectfully submit that the Kawai reference fails to disclose such features.

The Kawai reference discloses a conductive film that is formed on an internal wall of a via hole and on a non-binding surface. (See the Kawai reference, Fig. 10 and col. 9, lines 44-56.) For example, in Figure 18, the Kawai reference discloses that the conductive film 22 is on the internal wall of communicating hole 21 and on a portion of a non-binding surface 33C. (See the Kawai reference, col. 12, lines 27-34.) However, as shown in Figures 10, 12, and 21 of the Kawai reference, the soldering bump is disposed outside of the via hole on the non-binding surfaces. Indeed, the Kawai reference specifically explains that the "solder

bump may be provided in a part of a conductive film located on the surface side of the glass substrate. (*Id.*, at col. 2, lines 60-63, emphasis added.) Therefore, the Kawai reference discloses a solder ball outside of a via hole and not a solder ball in the via hole, as recited in claims 1 and 11.

The Kawai reference, at col. 10, lines 34-37, with reference to Figs. 10 and 11, does provide a comparison of their invention with the prior art as follows:

compared with the case in which the soldering bump 23 is directly connected to the concave bottom portion 21B of the communicating hole 21,

(The Kawai reference, col. 10, lines 34-37).

Figs. 10, 11 and 12 of the Kawai reference are provided below for ease of reference:

FIG. 10

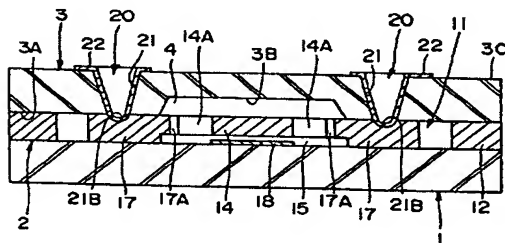


FIG. 11

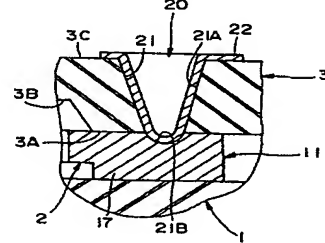
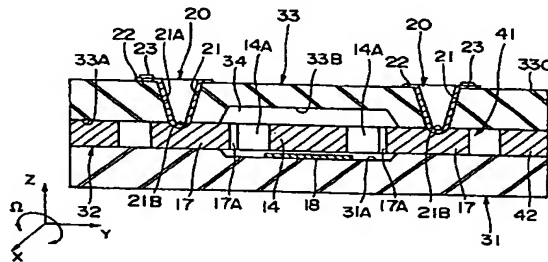


FIG. 12



To the extent that the prior art discussed in the Kawai reference as noted above speaks of the case in which the soldering bump 23 (shown in Fig. 12) is directly connected to the concave bottom portion 21B of the communicating hole 21, i.e., in the via hole, applicants respectfully

submit that the internal wall surface of the via hole 21 is covered with a thin metal film 23, which is exactly the problem of the prior art addressed by the instant invention and in this application. Accordingly, applicants respectfully submit that nothing in the comparison provided by the Kawai reference as noted above would teach or suggest the present invention as claimed in claims 1 and 11.

Accordingly, applicants request that the Examiner withdraw the rejection of claims 1 and 11 under 35 U.S.C. §102(b). As to claims 2-10 and 12-20, applicants submit that these claims are allowable at least by virtue of their dependency from claims 1 and 11, as well as their additional features.

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing amendments and remarks, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all the claims is hereby requested.

Respectfully submitted,

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PETITION and
DEPOSIT ACCOUNT CHARGE AUTHORIZATION

This document and any concurrently filed papers are believed to be timely. Should any extension of the term be required, applicant hereby petitions the Director for such extension and requests that any applicable petition fee be charged to Deposit Account No. 50-1645.

If fee payment is enclosed, this amount is believed to be correct. However, the Director is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-1645.

Any additional fee(s) necessary to effect the proper and timely filing of the accompanying-papers may also be charged to Deposit Account No. 50-1645.